

Early Predictors of Job Burnout and Engagement

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A longitudinal study predicted changes in burnout or engagement a year later by identifying 2 types of early indicators at the initial assessment. Organizational employees ($N = 466$) completed measures of burnout and 6 areas of worklife at 2 times with a 1-year interval. Those people who showed an inconsistent pattern at Time 1 were more likely to change over the year than were those who did not. Among this group, those who also displayed a workplace incongruity in the area of fairness moved to burnout at Time 2, while those without this incongruity moved toward engagement. The implications of these 2 predictive indicators are discussed in terms of the enhanced ability to customize interventions for targeted groups within the workplace.

Keywords: burnout, job engagement, early indicators

Job stress has been recognized as a significant occupational hazard that can impair physical health, psychological well-being, and work performance (see Kahn & Byosiere, 1992; Sauter & Murphy, 1995). The worker's internal experience of strain is assumed to play a mediating role between the impact of external job demands (stressors) and work-related outcomes (such as absenteeism or illness). This basic mediation model characterizes the job stress phenomenon known as burnout as well as its positive opposite of engagement with work (Leiter & Maslach, 2005). Burnout is an unpleasant and dysfunctional condition that both individuals and organizations would like to change; indeed, much of the major interest in burnout has been not simply to understand what it is but to figure out what to do about it (Maslach & Goldberg, 1998). Many studies have tried to identify the primary causes or correlates of burnout, with the goal of developing generic intervention strategies to change these factors.

The current research takes a different, but complementary, approach by trying to identify early signs of burnout development. If such early indicators were indeed valid predictors of future problems with burnout, then they could be used to identify "high risk" people who could be targeted for early, preventive interventions. This approach is a purely pragmatic one, which simply focuses on people's experiences at particular points in time rather than making other assumptions or including other variables. The basic premise is that if an individual is experiencing some early signs of burnout, then that information is sufficient for consideration of actions to prevent burnout and build engagement.

The Burnout–Engagement Continuum

People's psychological relationships to their jobs have been conceptualized as a continuum between the negative experience of burnout and the positive experience of engagement. There are three interrelated dimensions to this continuum: exhaustion–energy, cynicism–involvement, and inefficacy–efficacy (Leiter & Maslach, 2005). The initial research focused just on burnout, establishing it as a psychological syndrome that involves a prolonged response to chronic interpersonal stressors on the job (Maslach & Jackson, 1981b). The exhaustion component represents the basic individual strain dimension of burnout. It refers to feelings of being overextended and depleted of one's emotional and physical resources. The cynicism (or depersonalization) component represents the interpersonal context dimension of burnout and refers to a negative, callous, or excessively detached response to various aspects of the job. The component of inefficacy (or reduced accomplishment) represents the self-evaluation dimension of burnout and refers to feelings of incompetence and a lack of achievement and productivity in work. The significance of this three-dimensional model is that it clearly places the individual strain experience within the social context of the workplace and involves the person's conception of both self and others (Maslach, 1993). Research on burnout uses the Maslach Burnout Inventory (MBI) to assess these three dimensions (Maslach & Jackson, 1981a; Maslach, Jackson, & Leiter, 1996).

More recently, research has focused on the positive opposite of these three dimensions and labeled it as job engagement. Specifically, engagement has been defined as an energetic state of involvement with personally fulfilling activities that enhance one's sense of professional efficacy (Leiter & Maslach, 1998).¹ This

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¹ More recently, other researchers have used the same term of "engagement" but have departed from the original Leiter and Maslach (1998) formulation. Although retaining the idea that engagement is a positive "opposite" of burnout, this alternative approach has developed a separate measure, with three different dimensions, rather than utilizing the opposite scores on the MBI (González-Romá, Schaufeli, Bakker, & Lloret, 2002; Schaufeli & Bakker, 2004). New research has suggested that this alternative approach contributes very little additional explained variance over the MBI (Leiter & Laschinger, 2006).

multi-dimensional concept of engagement provides a more complex and thorough perspective on people's relationships with their work, over and above such single concepts as organizational commitment, job satisfaction, or job involvement. The practical significance of this burnout–engagement continuum is that engagement represents a desired goal for any burnout interventions. Such a framework leads people to consider what factors in the workplace are likely to enhance employees' energy, vigor and resilience; to promote their involvement and absorption with the work tasks; and to ensure their dedication and sense of efficacy and success on the job (Leiter & Maslach, 1998).

In the research literature on burnout, exhaustion is the most widely reported and the most thoroughly analyzed dimension of this syndrome. Although exhaustion reflects the strain dimension of burnout, it fails to capture the critical aspects of the relationships that people have with their work. Exhaustion is not something that is simply experienced—rather, it prompts actions to distance oneself emotionally and cognitively from one's work, presumably as a way to cope with work overload. Cynicism (or depersonalization) is an attempt to put distance between oneself and various aspects of the job, and it is such an immediate reaction to exhaustion that a strong relationship from exhaustion to cynicism is found consistently in burnout research, across a wide range of organizational and occupational settings (Maslach & Leiter, 2005). The third dimension of reduced efficacy exhibits a more complex relationship to the first two dimensions, sometimes being directly related to them and sometimes being more independent.

The three dimensions of the burnout–engagement continuum are assessed by the MBI, which is considered the standard tool for research in this field. The MBI was originally designed for use with people working in the human services and health care; a slightly modified version was then developed for use by people working in educational settings. More recently, given the increasing interest in burnout within occupations that are not so clearly client-oriented, a third, more generic version of the MBI was developed (the MBI—General Survey [MBI–GS]). The MBI–GS assesses the same three dimensions as the original measure but labeled in more general terms (exhaustion, cynicism, and inefficacy), and it maintains a consistent factor structure across a variety of occupations (see Maslach et al., 1996, for all three versions of the MBI).

Correlates of Burnout and Engagement

The initial research on burnout, which began in the mid-1970s and 1980s, was concentrated in the United States and Canada, but with the translations of articles and research measures, it began to be studied in many other countries. Currently, research is being conducted internationally, with the bulk of the work occurring in post-industrialized nations (see reviews by Maslach, Schaufeli, & Leiter, 2001; Schaufeli & Enzmann, 1998). Although the psychometric properties of the MBI are similar across cultures, there appear to be national differences in average levels of burnout. For example, Europeans show lower average scores than do North Americans (Schaufeli & Enzmann, 1998), and other researchers have found cultural differences in multi-national data sets (Golembiewski, Boudreau, Munzenrider, & Luo, 1996; Savicki, 2002).

Research has established that burnout is a stress phenomenon that shows the expected pattern of health correlates, such as

headaches, gastrointestinal disorders, muscle tension, hypertension, cold/flu episodes, and sleep disturbances (see review by Leiter & Maslach, 2000a). However, it is also a form of mental distress characterized by (a) a predominance of dysphoric symptoms such as emotional exhaustion and fatigue; (b) a predominance of mental and behavioral symptoms rather than physical ones; (c) symptoms that are work-related; (d) manifestation of symptoms in “normal” persons who did not suffer from prior psychopathology; and (e) decreased work performance resulting from negative attitudes and behaviors (Maslach & Schaufeli, 1993). These symptoms are largely represented in the diagnosis for job-related neurasthenia (World Health Organization, 1992), so recent research has been utilizing this diagnosis as the psychiatric equivalent of burnout. A recent study has found that burnout scores on the MBI can distinguish psychiatric outpatients diagnosed with job-related neurasthenia from outpatients diagnosed with other mental disorders as well as that the former group shows a less pathological profile than the latter (Schaufeli, Bakker, Hoogduin, Schaap, & Kladler, 2001). Other research has shown that burnout is distinct from (but possibly predictive of) more severe types of mental illness. For example, a clear distinction has been established between burnout and depression, even though these two phenomena are related (Bakker, Schaufeli, Demerouti, et al., 2000; Glass & McKnight, 1996; Leiter & Durup, 1994), while other research has found that burnout is predictive of depression and other emotional symptoms (Greenglass & Burke, 1990; Schonfeld, 1989).

In many studies, burnout has been associated with various forms of negative responses to the job, including job dissatisfaction, low organizational commitment, absenteeism, intention to leave the job, and turnover. Fewer research studies have been able to collect direct evidence of impaired job performance (beyond self-report). However, some studies have found that nurses experiencing higher levels of burnout were judged independently by their patients to be providing a lower level of patient care (Leiter, Harvie, & Frizzell, 1998; Vahey, Aiken, Sloane, Clarke, & Vargas, 2004), while another study of police officers found a link between burnout and the use of violence against civilians (Kop, Euwema, & Schaufeli, 1999). Research on work–family issues has found that burnout has a negative “spillover” effect; workers experiencing burnout were rated by their spouses in more negative ways (Jackson & Maslach, 1982; Zedeck, Maslach, Mosier, & Skitka, 1988), and the workers reported that their job had a negative impact on their family and that their marriage was unsatisfactory (Burke & Greenglass, 1989, 2001).

Several demographic variables have been studied in relation to burnout, but the studies are relatively few and the findings are not that consistent (see Schaufeli & Enzmann, 1998, for a review). Moreover, there are confounding variables (e.g., age and work experience, sex and type of occupation) that make the interpretation of any demographic results more difficult. Several personality traits have also been studied in an attempt to discover which types of people may be at greater risk for experiencing burnout. As with demographic variables, there have been some suggestive trends, but the only consistent findings have come from research on the Big Five personality dimensions, which has found a link between burnout and the dimension of Neuroticism (Deary et al., 1996; Hills & Norvell, 1991; Zellars, Perrewe, & Hochwarter, 2000). Neurotic individuals are emotionally unstable and prone to psy-

chological distress, so this personality correlate of burnout makes theoretical sense.

In contrast to the relative dearth of significant individual variables, many organizational risk factors have been identified in research across many occupations (see reviews by Maslach & Leiter, 2005; Maslach et al., 2001; Schaufeli & Enzmann, 1998). These factors can be summarized within six key domains of the workplace environment: workload, control, reward, community, fairness, and values.

Workload

A commonly discussed source of burnout is overload: job demands exceeding human limits. Increased workload has a consistent relationship with burnout, especially with the exhaustion dimension (Cordes & Dougherty, 1993; Maslach et al., 2001; Schaufeli & Enzmann, 1998). Structural models of burnout have shown that exhaustion then mediates the relationship of workload with the other two dimensions of burnout (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001; Lee & Ashforth, 1996; Leiter & Harvie, 1998). Both qualitative and quantitative work overload contribute to exhaustion by depleting the capacity of people to meet the demands of the job. The critical point occurs when people are unable to recover from work demands. That is, acute fatigue resulting from an especially demanding event at work—meeting a deadline or addressing a crisis—need not lead to burnout if people have an opportunity to recover during restful periods at work or at home (Shinn, Rosario, Morch, & Chestnut, 1984). When this kind of overload is a chronic job condition, not an occasional emergency, there is little opportunity to rest, recover, and restore balance. A sustainable workload, in contrast, provides opportunities to use and refine existing skills as well as to become effective in new areas of activity (Landsbergis, 1988).

Control

The demand–control theory of job stress (Karasek & Theorell, 1990) has identified the importance of personal control in the workplace. A major control problem occurs when people experience role conflict, and many burnout studies have found a strong relationship between role conflict and the exhaustion dimension of burnout (Cordes & Dougherty, 1993; Maslach et al., 1996). Role ambiguity (the absence of direction in work) is also associated with greater burnout, but not as consistently as that of role conflict; while role conflict directly inhibits a course of action, role ambiguity may enhance some work contexts by providing the freedom to pursue one's values. On the positive side, active participation in organizational decision-making has been consistently found to be associated with higher levels of efficacy and lower levels of exhaustion (Cherniss, 1980; Lee & Ashforth, 1993; Leiter, 1992). Control over workplace hazards increases employees' energy and health at work (Leiter, 2005).

Reward

The results of various studies have shown that insufficient reward (whether financial, institutional, or social) increases people's vulnerability to burnout (e.g., Chappell & Novak, 1992; Glicklen, 1983; Maslanka, 1996; Siefert, Jayaratne, & Chess,

1991). Lack of recognition from service recipients, colleagues, managers, and external stakeholders devalues both the work and the workers and is closely associated with feelings of inefficacy (Cordes & Dougherty, 1993; Maslach et al., 1996). In contrast, congruence in the reward dimension between the person and the job means that there are both material rewards and opportunities for intrinsic satisfaction and pride (Richardson, Burke, & Leiter, 1992).

Community

Community is the overall quality of social interaction at work, including issues of conflict, mutual support, closeness, and the capacity to work as a team. Burnout research has focused primarily on social support from supervisors, coworkers, and family members (Cordes & Dougherty, 1993; Greenglass, Fiksenbaum, & Burke, 1994; Greenglass, Pantony, & Burke, 1988; Maslach et al., 1996). Distinct patterns have been found for informal coworker support and supervisor support (Jackson, Schwab, & Schuler, 1986; Leiter & Maslach, 1988). Supervisor support has been more consistently associated with exhaustion, reflecting the supervisors' impact on staff members' workload. Coworker support is more closely related to accomplishment or efficacy, reflecting the value staff members put on the expert evaluation by their peers. A sense of community has been found to buffer the impact of feelings of inequity at work (Truchot & Deregard, 2001). Regardless of its specific form, social support has been found to be associated with greater engagement (Leiter & Maslach, 1988; Schnorpfeil et al., 2002). Research on the social context of burnout has also attended to the broader issues associated with a sense of community in an organization (Drory & Shamir, 1988; Farber, 1984; Royal & Rossi, 1996). Research on community orientation (Buunk & Schaufeli, 1993) has provided a distinct but consistent perspective, demonstrating that burnout is less likely to occur within a positive and supportive workplace environment.

Fairness

Fairness is the extent to which decisions at work are perceived as being fair and equitable. Relevant research on procedural justice (e.g., Lawler, 1968; Tyler, 1990) has shown that people are more concerned with the fairness of the process than with the favorableness of the outcome. Fairness is central to equity theory (Walster, Berscheid, & Walster, 1973), which posits that perceptions of equity or inequity are based on people's determination of the balance between their inputs (i.e., time, effort, and expertise) and outputs (i.e., rewards and recognition). This core notion of inequity is also reflected in the effort–reward imbalance model (Siegrist, 1996).

Research based on these theoretical frameworks has found that a lack of reciprocity, or imbalanced social exchange processes, is predictive of burnout (e.g., Bakker, Schaufeli, Sixma, Bosveld, & vanDierendonck, 2000; Schaufeli, van Dierendonck, & van Gorp, 1996). Fairness has also emerged as a critical factor in administrative leadership (e.g., Laschinger & Leiter, 2006; White, 1987). Employees who perceive their supervisors as being both fair and supportive are less susceptible to burnout and are more accepting of major organizational change (Leiter & Harvie, 1997, 1998).

Values

The area of values refers to the cognitive–emotional power of job goals and expectations. Values are the ideals and motivations that originally attracted people to their jobs, and thus they are the motivating connection between the worker and the workplace, which goes beyond the utilitarian exchange of time for money or advancement. When there is a values conflict on the job, and thus a gap between individual and organizational values, workers will find themselves making a tradeoff between work they want to do and work they have to do. One resolution of the tension resulting from value conflicts is to bring personal expectations in line with those of the organization (Stevens & O’Neill, 1983); another is to leave the organization in search of more fulfilling career opportunities (Pick & Leiter, 1991). Recent research has found that a conflict in values is related to all three dimensions of burnout (Leiter & Harvie, 1997), and a structural model of burnout suggests that values may play a key role in predicting levels of burnout and engagement (Leiter & Maslach, 2005). On the positive side, consistent organizational and personal values on knowledge sharing are associated with greater professional efficacy (Leiter, Day, Harvie, & Shaughnessy, 2007).

Job–Person Incongruity

A consistent theme throughout the research literature on organizational risk factors is the problematic relationship between the person and the environment, which is often described in terms of imbalance or misalignment or misfit. For example, the demands of the job exceed the capacity of the individual to cope effectively, or the person’s efforts are not reciprocated with equitable rewards. Building on earlier models of job–person fit (e.g., French, Rodgers, & Cobb, 1974), in which better fit was assumed to predict better adjustment and less strain, Maslach and Leiter (1997) formulated a burnout model that focuses on the degree of perceived congruency between the individual and key aspects of his or her organizational environment. The model proposes that the greater the perceived incongruity, or mismatch, between the person and the job, the greater the likelihood of burnout; conversely, the greater the perceived congruity, the greater the likelihood of engagement with work. Such incongruities may be temporary, rather than fixed, and may shift over time (e.g., as a result of a change in job responsibilities or in a person’s expectations of a new colleague). In accord with the concept of cognitive appraisal of stressors (Lazarus & Folkman, 1984), the model assumes that what is critical is the individual’s appraisal of the extent of congruency between him/herself and the job. A measure of perceived incongruities within the six key domains of the workplace environment (the Areas of Worklife Scale) was developed as part of this model, and subsequent research has supported the hypothesized relationship between these six areas and the experience of burnout or engagement (Leiter & Maslach, 2004, 2005).

Identification of Indicators

All of the prior research on job burnout and engagement points to the conclusion that burnout is an unpleasant and stressful condition that can pose problems for both the individual and the organization. Therefore, it would be helpful to identify early signs

of burnout, so that preventive interventions could occur more effectively. Prior research now has provided a prospective basis for identifying individuals who are likely to be experiencing some initial signs of potential burnout.

A strong test of the proposition that early indicators can predict subsequent experiences of burnout and engagement requires several components. First, the hypothesized indicators should have an a priori theoretical rationale, based on past research. Second, a longitudinal paradigm, with a reasonably long time interval, is needed to test whether early indicators at Time 1 can indeed predict later effects at Time 2. Third, a more epidemiological paradigm is needed, in which there is an ongoing natural situation without any specified intervention, in order to assess the robustness of the longitudinal predictors.

Inconsistent Patterns of Burnout

The research literature on the multi-dimensional MBI as a measure of burnout and engagement has provided some clear guidance on what could serve as potential early indicators. It is reasonable to assume that the appearance of high scores on one dimension of burnout, but not the others, could be an early warning sign of impending problems. This assumption does not presume that there will be an inevitable development into a full-blown problem with burnout, as other factors (e.g., coping strategies, a change in the workplace) could affect the eventual outcome. However, at the very least, the appearance of a high score on only one of the MBI dimensions could serve as an early sign of potential trouble.

Of the three MBI dimensions, exhaustion and cynicism are the two primary measures of burnout. There is a strong, robust relationship between them, as evidenced by a correlation of approximately .55, which is found throughout the research literature (Maslach et al., 1996; Schaufeli & Enzmann, 1998). In other words, these two dimensions “go together”—they both appear strongly in people experiencing burnout, and they both fade away in people experiencing engagement with their work. Thus, a potential early warning sign is the presence of one of these two dimensions, but not the other. For example, during a period of peak demand, employees may become seriously exhausted, but their cynicism remains low because they can address the demands through effective coping. Alternatively, if there are issues of unfair treatment or disrespect in the workplace, employees may become cynical, but this situation would not necessarily deplete their energy and lead to exhaustion.

Given the strong relationship between exhaustion and cynicism, the operating assumption is that these two dimensions are consistent with one another and tend to mutually reinforce one another. This suggests that an “inconsistent” pattern (one dimension is present, but the other is absent) is likely to be an unstable one. According to consistency theories (Abelson et al., 1968), an inconsistency occurs when two things do not go together, such as an imbalance in attitudes or a dissonance between two cognitions. This inconsistency can be qualitative, as well as quantitative (e.g., my cognition that I have just chosen to do X behavior is dissonant with the cognition that I do not believe in doing X). The resulting tension from this inconsistency will push toward a more consistent resolution (such as changing one cognition to make it more consonant with the other). The application of this consistency theory

framework to the two burnout dimensions would lead to the prediction that the inconsistent pattern would change toward either one of two consistent patterns: burnout (both dimensions present) or engagement (both dimensions absent).

Two initial hypotheses emerge from this line of consistency theorizing. First, if consistency is indeed the more stable baseline, then more people should be exhibiting consistent (rather than inconsistent) patterns at any one time. Second, people who exhibit an inconsistent (early warning) pattern at Time 1 should be more likely to have changed by Time 2 than should those who already display a consistent pattern. Moreover, these changes should be in the direction of greater consistency.

The predicted change toward a more consistent pattern does not make the qualitative distinction between which pattern that will be. Under some conditions, a single dimension of burnout could stimulate the development of a second; under other conditions, the single dimension could fade away. For example, in the "exhaustion only" pattern, prolonged exhaustion has the potential to undermine the capacity for constructive coping, eventually resulting in a high level of cynicism (the consistent burnout pattern). Alternatively, the demands leading to episodic exhaustion may abate, especially if the people experiencing exhaustion engage in effective coping and job involvement (the consistent engagement pattern). Similar alternative scenarios can be proposed for the "cynicism only" pattern.

Based on this reasoning, the current study identified two qualitative metrics of inconsistent patterns at Time 1: the exhaustion only group (which lacked cynicism) and the cynicism only group (which lacked exhaustion). It then assessed the degree to which these two groups were more likely to change over the course of a year, as compared with the two consistent (and presumably more stable) burnout and engagement groups. The study assessed whether either inconsistent pattern might be more likely to evolve into burnout or into engagement. However, given the lack of any conceptual or empirical basis for a clear prediction, this remained an exploratory hypothesis.

Incongruence Between Person and Job

Research on job correlates of burnout has suggested that a better predictor of whether an inconsistent pattern will evolve toward burnout or engagement will be the presence of a negative incongruence between the person and the job. Such incongruity indicates that the person is currently experiencing difficulties in the workplace and may be unable to handle the job successfully. For someone who is already experiencing one of the burnout dimensions (inconsistent pattern), this level of incongruity can be the additional "tipping point" that propels him or her into a full-blown case of burnout. On the other hand, if the person is experiencing a better fit, or alignment, with the job, that inconsistent pattern is more likely to resolve in a positive direction of greater engagement with work.

Six areas of worklife have been identified in which incongruities are predictive of burnout, and, conversely, congruities are predictive of engagement (Leiter & Maslach, 2004). There is currently no theoretical rationale for predicting which of the six areas might be the most critical predictor, so this remained an exploratory issue. However, the minimum hypothesis is that at least one of the

six areas at Time 1 will predict the qualitative direction of change, either toward burnout or toward engagement, at Time 2.

Based on this reasoning, the current study measured scores on the six areas of worklife at both Time 1 and Time 2. It first assessed whether the relationship between workplace incongruities and burnout was replicated within the current sample at both time points. It then assessed whether incongruent scores in any one of the six areas at Time 1 were predictive of changes toward burnout or engagement at Time 2, for those people who had inconsistent (early warning) patterns at Time 1.

Current Study

To test these hypotheses about early indicators of burnout and engagement, the current study tracked the responses of employees within an organization that conducted an annual evaluation process. Two of these evaluations, which were a year apart, constituted the longitudinal data set. The organizational workforce was sufficiently large that there was a good possibility of generating an adequate sample of respondents with linked data between Time 1 and Time 2. Although the individual data were anonymous, information was provided about departmental unit. Thus, in addition to the individual data analyses, it was possible at the completion of the study to do post hoc comparisons between units with different aggregate profiles of burnout scores. The data from this study provide an initial opportunity to assess (a) whether the inconsistency indicators (early warning) at Time 1 would predict subsequent change by Time 2 and (b) whether an incongruent score on at least one of the six areas of worklife (tipping point) would predict the positive or negative qualitative direction of that change. The specific hypotheses were as follows:

Hypothesis 1: Based on consistency theories, it was hypothesized that people with consistent patterns on the two dimensions of exhaustion and cynicism (both present or both absent) would be larger in number than those with inconsistent patterns (only one present). Thus, at both Time 1 and Time 2, more people should display either the burnout or engagement patterns than either the exhaustion only or cynicism only patterns.

Hypothesis 2: Following from the proposition that exhaustion and cynicism maintain one another over time, it was hypothesized that people with consistent patterns (burnout, engagement) would be more stable in their experience and would show less change over time, while those with inconsistent, early warning patterns (exhaustion or cynicism only) would show more change. Moreover, this change should be in the direction of more consistent patterns. An inconsistent pattern does not differentiate the direction of change, only the extent to which change in either direction (toward burnout or toward engagement) is likely to occur.

Hypothesis 3: In light of strong associations of burnout with the quality of worklife, it was hypothesized that incongruities in each of the six areas of worklife would be correlated with burnout at both Time 1 and Time 2. Specifically, it was hypothesized that incongruent scores on workload, control, reward, community, fairness, and values would each be pos-

itively correlated with exhaustion and cynicism and negatively correlated with efficacy. This hypothesis was tested both cross-sectionally and longitudinally.

Hypothesis 4: Given the relationship between burnout and the six areas of worklife, it was hypothesized that an incongruity in at least one of the six areas at Time 1, for those people with an inconsistent pattern, would predict that their subsequent change would be toward burnout rather than toward engagement. Prior research on the six areas does not provide definitive guidance on which areas might be most predictive of these changes, so this was an exploratory hypothesis.

Method

The staff of a business and administrative services division of a large North American university participated in an annual assessment process, as part of its attempt to deal with a series of organizational issues. The assessment utilized a checkup survey process that is designed to produce a high level of employee participation within the organization, with a minimum goal of a 70% response rate (see Leiter & Maslach, 2000b, for details of this organizational checkup process). The survey included measures of the six areas of worklife, the three dimensions of experienced job burnout, and some basic demographic and department information. The identical survey was administered twice, with a 1-year interval, at the same time of year: Time 1 in 2001 and Time 2 in 2002.

Participation in the study was voluntary, anonymous, and confidential, but the participants were asked to provide a unique code that would link their responses from Time 1 to Time 2. The survey was fully supported by top administrators who, in their survey introduction, pledged that the aggregated responses would be made public and would be used to help design interventions that would improve working conditions. A strategic planning group, which was composed of staff from various units and levels of responsibility, was responsible for the oversight of the survey process. The overall organizational results from Time 1 were shared with each department in the division, along with the specific findings for their individual unit. Each department was asked to focus on those areas of worklife that had been identified as problematic for them as well as to introduce some improvements. As might be expected from such a decentralized, non-systematic organizational strategy, the departments varied widely in terms of what problems they decided to tackle, how they did so, and whether these changes were actually implemented within the year. Some units developed staff recognition programs, one unit focused on improving communications and hired a consultant, a few units made supervisory and staffing changes, one instituted leadership training for its supervisors, and a few either resisted doing anything new or had difficulties in figuring out how to manage a change process.

The organization's objective for the Time 2 assessment was to see if any of these unit activities had led to improved scores among the employees. Indeed, several of the smaller departments found that they had achieved a more positive view of their workplace. However, the largest department within the division experienced a major organizational crisis during the year. The senior administration conducted an investigation that identified employees who were stealing organizational supplies. In the month prior to the Time 2 assessment, the division implemented discipline proce-

dures that resulted in the dismissal of several employees from the department. This was not a planned intervention related to the study, but it was a significant event with implications for employees' evaluations of their worklives. Employees disciplined in the procedure may have completed the survey at Time 2, but there is no way of differentiating employees according to how much they might have been affected by news of the event. However, a post hoc comparison of this particular department with all the others was conducted to see if there were some meaningful differences in employees' responses.

Participants

During Time 1, a total of 992 responses of the possible 1,140 participants (87% response rate) were collected. At Time 2, a total of 812 responses of the potential 1,128 participants (72% response rate) were received. Linking the two sets of data presented serious challenges. Participants followed a set of instructions at Time 1 to generate a unique code for themselves (e.g., the day of your mother's birthday, the last two letters of mother's maiden name and the last two letters of father's first name). The same instructions were repeated at Time 2, so that the same code would be regenerated, thus linking individual data between periods. Although participants included this code on response sheets at Time 1 and at Time 2, they did not divulge their identity in order to maintain anonymity. Although the system of participant-generated codes provided a high degree of confidentiality, it also led to a large number of incomplete links as individuals failed to provide a consistent code across the various surveys. Of the 812 respondents at Time 2, 63 indicated that they had worked at the organization less than 12 months, eliminating them from a possible match with the previous year's data. Of the remaining 749 respondents, a total of 446 participants (60% of Time 2 respondents; 40% of employees at Time 2) were linked by their codes.

Of the 446 participants for whom data were linked, there were 186 women and 255 men, with 5 not identified. At Time 1, the age ranges were 18 to 29 ($n = 71$), 30 to 39 ($n = 78$), 40 to 49 ($n = 145$), 50 to 59 ($n = 125$), and 60 or older ($n = 17$). The categories for time of employment were less than 6 months ($n = 40$), 6 months to 1 year ($n = 30$), 1 to 2 years ($n = 43$), 2 to 5 years ($n = 80$), 5 to 10 years ($n = 53$), 10 to 15 years ($n = 86$), 15 to 20 years ($n = 37$), 20 to 25 years ($n = 35$), and more than 25 years ($n = 33$). The positions included front-line staff ($n = 336$), front-line supervisors ($n = 60$), and management ($n = 44$). They included 382 career employees and 60 casual employees. Participants worked in seven departments: Department A ($n = 59$), Department B ($n = 56$), Department C ($n = 31$), Department D ($n = 45$), Department E ($n = 166$), Department F ($n = 78$), and Senior Management ($n = 4$).

Comparisons between the linked and unlinked respondents revealed that the two samples were fairly similar in terms of demographics. Indeed, the only difference between the linked and unlinked respondents concerned the distribution of job positions at Time 1. According to a series of chi-square tests (using a .01 level criterion for significance in light of repeated tests), management was relatively overrepresented in the linked group, and front-line staff was relatively overrepresented in the unlinked group, $\chi^2(2, N = 992) = 16.37, p < .01$. Because managers were a relatively small number of participants (44 of 446 participants), it was

concluded that this bias would not severely limit the generalizability of the findings. Contrasts on the nine measures in the study indicated that the participants with linked scores had a more positive view of themselves and their work setting at Time 1 than did those whose scores were not linked: Linked participants scored higher on control, $t(972) = 3.00, p < .01$; Cohen's $d = .20$; 95% confidence interval (CI) = 0.06, 0.28; community, $t(972) = 4.35, p < .01$; Cohen's $d = .28$; 95% CI = 0.13, 0.35; fairness, $t(972) = 4.25, p < .01$; Cohen's $d = .27$; 95% CI = 0.12, 0.33; and values, $t(972) = 4.72, p < .01$; Cohen's $d = .30$; 95% CI = 0.12, 0.29; and lower on cynicism, $t(972) = -3.15, p < .01$; Cohen's $d = .21$; 95% CI = 0.11, 0.46. Such a more positive perspective on the work setting is consistent with the greater proportion of management personnel in the linked sample.

Measures

The complete survey was designed to address a number of issues of concern to the organization. Included in the survey were the two measures needed to test our longitudinal hypotheses about early predictors of burnout and engagement.

Burnout–engagement. The MBI–GS (Schaufeli, Leiter, Maslach, & Jackson, 1996) measures the three dimensions of the burnout–engagement continuum: exhaustion–energy, cynicism–involvement, and inefficacy–efficacy. The items are framed as statements of job-related feelings (e.g. “I feel burned out from my work,” “I feel confident that I am effective at getting things done”)² and are rated on a 6-point frequency scale (ranging from *never to daily*). Burnout is reflected in higher scores on exhaustion and cynicism and lower scores on efficacy, while the opposite pattern reflects greater engagement. Developed from the original MBI (Maslach & Jackson, 1981a), which was designed for human service occupations, the MBI–GS is a 16-item measure that evaluates the burnout–engagement continuum among people in all occupations. Thus, the MBI–GS was appropriate for all employees within the participating organization.

The test of our hypotheses requires a metric that can make a qualitative distinction between the two consistent patterns (burnout or engagement), as well as between the two inconsistent patterns (exhaustion or cynicism only). Median splits on scores for exhaustion and for cynicism were used to create four quadrants corresponding to these patterns: above the median on both dimensions (burnout), below the median on both (engagement), or above the median on one dimension but below the median on the other (exhaustion only, cynicism only). This measure of the four possible patterns was calculated for each participant, at both Time 1 and Time 2.

Six areas of worklife. The Areas of Worklife Scale (AWS) measure (Leiter & Maslach, 2000b, 2004) comprises 29 items that produce distinct scores for each of the six areas of worklife: workload (6), control (3), reward (4), community (5), fairness (6), and values (5). The items are worded as statements of perceived congruence or incongruence between oneself and the job. Thus each subscale includes positively worded items of congruence, for example, “I have enough time to do what’s important in my job” (workload), and negatively worded items of incongruence, for example, “Working here forces me to compromise my values” (values). Respondents indicate their degree of agreement with these statements on a 5-point Likert-type scale ranging from 1

(*strongly disagree*), through 3 (*hard to decide*), to 5 (*strongly agree*). The scoring for the negatively worded items is reversed. For each of the six subscales, the AWS measure defines congruence as a high score (greater than 3.00), indicating a higher degree of perceived alignment between the workplace and the respondent’s preferences. Conversely, it defines incongruence as a low score (less than 3.00), indicating more perceived misalignment or misfit between the worker and the workplace. The AWS items were developed from a series of staff surveys conducted by the Centre for Organizational Research and Development (Leiter & Harvie, 1998; Maslach & Leiter, 1997) as a means of assessing the constructs underlying our analysis of the six areas of worklife. The scale has yielded a consistent factor structure across samples with acceptable alpha levels: workload (.70), control (.70), reward (.82), community (.82), fairness (.82), and values (.74). An indication of the subscales’ construct validity is that when respondents were given an opportunity to comment on any issue in their worklives, the topics on which they wrote complaints corresponded with the areas of worklife that they evaluated negatively (Leiter & Maslach, 2004).

To test the hypotheses of directional change, it was necessary to devise an indicator of a potential job–person incongruity that could signal that an individual was on the brink of moving toward burnout. Lower, more incongruent scores on each of the AWS subscales were used as the measure of such a job–person mismatch (tipping point) that would predict a change toward burnout. Conversely, higher scores of greater congruency were hypothesized to predict a change toward engagement.

Results

Overall, the results provide support for the hypotheses about early predictors of burnout. Those people who exhibited inconsistent (early warning) patterns at Time 1 were more likely to have changed by Time 2, in contrast to those with consistent patterns. The workplace incongruity (tipping point) that determined whether people changed toward burnout or engagement was their perception of fairness in the workplace.

Descriptive Statistics and Correlations

Table 1 displays the means, standard deviations, Cronbach’s alpha, and correlations for the three dimensions of burnout and the six areas of worklife for Time 1. Table 2 displays this information for Time 2. Table 3 displays the t values and significance for the contrasts between Time 1 and Time 2 and the correlations between the Time 1 and Time 2 measures. Table 4 displays the distribution of participants by length of job tenure, in terms of their consistency pattern at Time 1. Of the 446 participants for whom records were linked over time, 440 provided complete responses on all variables in the study.

The alpha levels for the various measures indicate an acceptable level of interitem consistency in the measures. The correlations are

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Table 1
Means, Standard Deviations, Cronbach's Alpha, and Correlations: Time 1 (N = 440)

Variable	M	SD	α	2	3	4	5	6	7	8	9
1. Exhaustion	2.09	1.46	.91	.55**	-.06	-.60**	-.35**	-.39**	-.33**	-.39**	-.38**
2. Cynicism	1.82	1.34	.83	—	-.25**	-.36**	-.44**	-.49**	-.39**	-.42**	-.47**
3. Efficacy	4.54	1.12	.70	—	—	-.01	.17**	.20**	.12**	.12**	.17**
4. Workload	3.14	0.60	.78	—	—	—	.21**	.29**	.27**	.26**	.20**
5. Control	3.60	0.85	.74	—	—	—	—	.52**	.50**	.51**	.46**
6. Reward	3.36	0.60	.78	—	—	—	—	—	.50**	.58**	.56**
7. Community	3.56	0.85	.87	—	—	—	—	—	—	.55**	.51**
8. Fairness	3.12	0.84	.87	—	—	—	—	—	—	—	.66**
9. Values	3.45	0.70	.77	—	—	—	—	—	—	—	—

** $p < .01$.

consistent with those reported in Leiter and Maslach (2004). There was no relationship between how long people had worked on the job and whether they displayed a consistent or inconsistent pattern at Time 1, $\chi^2(6, N = 440) = 7.36, p = .289, ns$. For the organization as a whole, the scores moved in the negative direction over the year, so that at Time 2 there was greater burnout (higher exhaustion and cynicism, and lower efficacy), and greater incongruence in the areas of community, fairness, and values.

Potential for Change

Hypothesis 1. People displaying either one of the consistent patterns (burnout or engagement) were predicted to be larger in number than those with inconsistent patterns (exhaustion or cynicism only), at both Time 1 and Time 2. A chi-square test of the pattern across the four groups confirms this hypothesis. At Time 1, the burnout and engagement groups were each more than twice as large as the two inconsistent pattern groups, $\chi^2(1, N = 440) = 50.93, p < .0001$: burnout ($n = 150$), engagement ($n = 144$), exhaustion only ($n = 85$), cynicism only ($n = 61$). This pattern replicated at Time 2, $\chi^2(1, N = 440) = 71.93, p < .0001$: burnout ($n = 160$), engagement ($n = 149$), cynicism only ($n = 77$), exhaustion only ($n = 54$).

Hypothesis 2. People with consistent patterns (burnout, engagement) were predicted to be more stable in their experience and show less change over time, while those with inconsistent patterns (exhaustion or cynicism only) would show more change. Moreover, this change was hypothesized to be in the direction of more consistent patterns. This hypothesis was tested by first replicating

the standard correlation. As can be seen in Tables 1 and 2, the correlation between exhaustion and cynicism was the expected .55, both at Time 1 and Time 2. The next, critical test involved looking at the number of participants who displayed either consistent or inconsistent patterns at Time 1, and comparing how many members of each of these groups changed patterns over time or stayed the same. As indicated in Table 5, the engagement group was the most stable with 83 of 144 (58%) remaining in the same pattern at Time 2, followed by the burnout group (79/150 = 53%). Only 36% (22/61) of those in the exhaustion only group showed the same pattern at Time 2, as did only 24% (20/85) of those in the cynicism only group.

In summary, 55% of the participants with consistent patterns remained the same, while only 29% of those with inconsistent patterns remained stationary, $\chi^2(1, N = 440) = 25.84, p < .001$. Moreover, very few participants moved from one inconsistent pattern to the other: Only 1 of the 39 participants who changed from exhaustion only went to cynicism only, and only 7 of the 65 participants who changed from cynicism only went to exhaustion only. This analysis demonstrates that people with inconsistent patterns were not only more likely to change but that the direction of their change was overwhelmingly toward the consistent patterns, $\chi^2(1, N = 440) = 74.58, p < .001$. All of these results confirm Hypothesis 2.

Within this change toward consistency, was there a bias toward either the burnout or the engagement pattern? A Fisher exact test was used to answer this question. Of the 38 participants moving to a consistent pattern from the exhaustion only group, 18 (47%)

Table 2
Means, Standard Deviations, Cronbach's Alpha, and Correlations: Time 2 (N = 440)

Variable	M	SD	α	2	3	4	5	6	7	8	9
1. Exhaustion	2.31	1.51	.91	.55**	-.03	-.63**	-.36**	-.35**	-.37**	-.39**	-.37**
2. Cynicism	2.06	1.41	.80	—	-.32**	-.30**	-.43**	-.49**	-.40**	-.46**	-.51**
3. Efficacy	4.70	1.06	.81	—	—	.01	.21**	.20**	.16**	.13**	.26**
4. Workload	3.08	0.87	.80	—	—	—	.36**	.29**	.32**	.38**	.27**
5. Control	3.51	0.91	.81	—	—	—	—	.54**	.54**	.57**	.55**
6. Reward	3.34	0.90	.87	—	—	—	—	—	.49**	.61**	.65**
7. Community	3.46	0.88	.89	—	—	—	—	—	—	.56**	.56**
8. Fairness	3.02	0.89	.89	—	—	—	—	—	—	—	.70**
9. Values	3.33	0.79	.82	—	—	—	—	—	—	—	—

** $p < .01$.

Table 3
t Tests on Differences Over Time and Correlations Between Time 1 and Time 2 Constructs (N = 440)

Variable	<i>t</i> (441)	<i>p</i>	95% confidence interval		<i>d</i>	1	2	3	4	5	6	7	8	9
			Lower	Upper										
1. Exhaustion	-3.39	.01	-.37	-.10	-.16	.52**	.37**	.04	-.47**	-.24**	-.30**	-.27**	-.33**	-.28**
2. Cynicism	-3.85	.01	-.38	-.12	-.18	.27**	.51**	-.14**	-.18**	-.28**	-.34**	-.24**	-.36**	-.35**
3. Efficacy	-2.85	.01	-.27	-.05	-.14	.03	-.09*	.42**	-.10*	.11**	.12**	.06	.10*	.13**
4. Workload	1.83	<i>ns</i>	.00	.13	.09	-.43**	-.26**	-.09*	.62**	.17**	.20**	.23**	.27**	.15**
5. Control	2.35	.05	.02	.17	.11	-.22**	-.31**	.06	.13**	.54**	.40**	.34**	.46**	.38**
6. Reward	0.67	<i>ns</i>	-.05	.11	.03	-.19*	-.30**	.09	.18**	.33**	.51**	.29**	.43**	.41**
7. Community	2.58	.01	.02	.18	.12	-.22**	-.24**	.02	.16**	.34**	.36**	.53**	.46**	.35**
8. Fairness	2.82	.01	.03	.18	.13	-.25**	-.30**	.06	.20**	.35**	.41**	.33**	.59**	.46**
9. Values	3.41	.01	.05	.18	.16	-.21**	-.28**	.13**	.20**	.37**	.45**	.34**	.51**	.56**

* *p* < .05. ** *p* < .01.

moved to engagement and 20 (53%) moved to burnout. Within the cynicism only group, 22 (38%) moved to engagement, and 36 (62%) moved to burnout. This contrast was not significant, $\chi^2(1, N = 96) = 1.00, ns$; there was no bias toward either burnout or engagement for the inconsistent groups.

In summary, the inconsistent (early warning) pattern of Time 1 scores on exhaustion and cynicism provided sufficient information to identify participants who were more likely to have changed by Time 2. However, these patterns at Time 1 did not predict the direction of that change—whether it would be toward burnout or engagement—over the course of the year.

Direction of Change

Hypothesis 3. Congruent scores on the six areas of worklife were predicted to be negatively correlated with burnout at both Time 1 and Time 2. For the sample as a whole, the results showed that these six areas were indeed strongly negatively correlated with both the exhaustion and cynicism dimensions and positively correlated with professional efficacy at each of these times (see Tables 1 and 2).

In addition to this cross-sectional test of this hypothesis, the critical longitudinal test assessed whether changes in burnout over time were also correlated with predicted changes in areas of worklife. In other words, was moving to burnout consistent with experiencing more negative incongruence with the workplace, and was moving to engagement consistent with experiencing more

positive congruence? This analysis used paired *t* tests within the two inconsistent (early warning) subgroups.

Within the cynicism only group, those people moving toward burnout showed negative changes on many measures over the study interval (see Table 6). In addition to scoring higher on exhaustion at Time 2 (which led them to burnout), they scored more negatively on three of the six areas of worklife: workload, control, and values. In contrast, as indicated in Table 7, the only significant change for the subgroup moving to engagement was a lower score for cynicism (2.35 at Time 1, dropping to 1.29 at Time 2). This change simply reflects the new engagement group’s definition—changing from high cynicism to low cynicism—so it does not reflect any associated changes, as is the case for the new burnout group. None of the other scores showed a significant change over the study interval. Together, the pair of analyses in Table 6 and Table 7 indicated that moving to burnout was associated with an extensive negative evaluation of the workplace, while moving toward engagement was associated with only a decline in cynicism.

A similar set of results occurred for the exhaustion only group. Those moving to burnout at Time 2 scored higher on cynicism and scored lower on two areas of worklife: community and values (see Table 8). In contrast, the only significant difference from Time 1 to Time 2 for the subgroup moving to engagement was that exhaustion decreased from 2.76 to 1.51 over the study interval (see Table 9). Together the pair of analyses in Table 8 and Table 9

Table 4
Distribution Across Years of Job Tenure

Job tenure	Time 1									
	Low exhaustion				High exhaustion				Total	
	Low cynicism		High cynicism		Low cynicism		High cynicism			
<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>N</i>	%	
Less than 2 years	45	31%	12	19%	24	28%	32	20%	113	25%
3 years to 19 years	75	52%	38	62%	50	58%	100	64%	263	59%
20 years or more	24	16%	11	18%	11	12%	22	14%	68	15%
Total	144		61		85		154		444	

Table 5
Shifts Across Groups from Time 1 to Time 2

Time 1	Time 2				Total
	Low exhaustion		High exhaustion		
	Low cynicism	High cynicism	Low cynicism	High cynicism	
Low exhaustion					
Low cynicism	83	15	21	25	144
High cynicism	22	20	7	36	85
High exhaustion					
Low cynicism	18	1	22	20	61
High cynicism	26	18	27	79	150
Total	149	54	77	160	440

Note. Numbers in bold represent those remaining in the identical group from Time 1 to Time 2.

indicates that those moving to burnout reported a more negative outlook over the year, but those moving to engagement changed solely on the defining dimension of lower exhaustion.

Hypothesis 4. For the two inconsistent (early warning) groups, it was hypothesized that a workplace incongruity in at least one of the six areas of worklife at Time 1 would serve as a tipping point and predict that people's subsequent change by Time 2 would be toward burnout rather than toward engagement. The analysis investigated these differences through a series of six *t* tests using a .0086 level of significance to accommodate the repeated tests determined through Bonferroni adjustment. These tests were conducted separately for each of the two inconsistent groups at Time 1.

Within the cynicism only group, the only difference at Time 1 between the subgroup that eventually moved toward burnout and the subgroup that eventually moved toward engagement was their assessment of the fairness area of worklife. At Time 1, those who moved to engagement at Time 2 scored higher on fairness ($M = 3.52$) than did those who had moved to burnout at Time 2 ($M = 2.71$), $t(56) = 3.69, p < .001$; Cohen's $d = 1.05$; 95% CI = $-1.24, -0.37$. A similar set of findings emerged for the exhaustion only group. Once again, the only difference at Time 1 was in the fairness area of worklife. Those who moved to engagement at Time 2 scored higher on Time 1 fairness ($M = 3.38$) than did those who moved to burnout at Time 2 ($M = 2.77$), $t(32) = 3.01, p < .001$; Cohen's $d = .76$; 95% CI = $-1.03, -0.20$.³

Post Hoc Departmental Analysis

This analysis considered whether the shift toward or away from burnout was associated with membership in the department that underwent a crisis immediately prior to the Time 2 survey. Table 10 displays the shift for the two inconsistent (early warning) groups, designating whether respondents were members of the crisis department or any other department. The analysis confirmed a bias in the shift, with members of the crisis department more likely to change toward burnout than were members of other departments, $\chi^2(1, N = 96) = 5.66, p < .05$.

A post hoc examination of Time 1 scores indicated that the percentage of crisis department employees showing early warning

signs was similar to the percentage for the organization as a whole: 20.4% for cynicism only (vs. 19.6% overall), and 16.0% for exhaustion only (vs. 13.9% overall). However, the distinctive shift of the crisis department toward burnout was presaged by the fact that it scored most negatively on the workplace incongruity (tipping point) of fairness, compared with all the other departments, $t(443) = 2.58, p < .01$; Cohen's $d = 0.24$; 95% CI = 0.05, 0.37. In addition, it scored more negatively than the others on incongruities in workload, $t(443) = 2.68, p < .01$; Cohen's $d = 0.26$; 95% CI = 0.55, 0.36; and values, $t(443) = 2.73, p < .01$; Cohen's $d = 0.27$; 95% CI = 0.52, 0.32. It appears that the pattern of tipping point indicators at Time 1 did indeed provide a relevant clue for the department's future problems.

Discussion

This new longitudinal research approach has yielded fresh insights into the process of how burnout changes over time. The empirical evidence is that people who are likely to actually shift toward burnout can be identified in advance by two indicators: an early warning sign of inconsistent scores and the tipping point experience of a job-person incongruence. Given that these two characteristics can be easily assessed, this approach provides organizations and employees with a powerful tool for preventive intervention. Later in the discussion these findings will be translated into decision rules for management use to address burnout early in its development.

Research Issues

As an initial step, this study provides longitudinal evidence in support of the hypotheses underlying this new approach. First, the standard relationship between the exhaustion and cynicism dimensions of burnout, and the corresponding consistency and stability of the burnout and engagement patterns, were replicated over the 1-year interval. Second, the relationship between burnout and mismatches in the six areas of worklife was also replicated longitudinally. The corroboration of these two longitudinal relationships provides the empirical foundation for our new approach to predicting changes in burnout. The first relationship between burnout dimensions allows us to identify an inconsistent pattern as an early warning sign of potential change. The second relationship allows us to identify a workplace incongruity as a potential tipping point toward burnout, rather than engagement. The results confirm our initial hypotheses that the inconsistent pattern predicts the likelihood of future change but that the incongruity score predicts what direction that change will take.

In this particular study, the critical incongruity, or tipping point, turned out to be the area of fairness. If people were experiencing problems with fairness in the workplace (such as favoritism, un-

³ An alternative explanation for the relationships among study variables is common method variance. Although examination of the current measures in structural equation analyses has identified significant correlations among error terms within the MBI and the AWS subscales, there have been no problematic error correlations among items in different subscales (Leiter et al., 2007). The use of composite measures within the analyses reported here reduces the potential impact of common method variance on these results.

Table 6
Contrast of Time 1 With Time 2 for Cynicism Only Group That Changed Toward Burnout

Variable	Time 1		Time 2		<i>t</i> (34)	<i>p</i>	95% confidence interval		Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			Lower	Upper	
Workload	3.25	0.75	2.70	0.68	4.70	.01	0.32	0.80	0.78
Control	3.60	0.89	3.07	0.92	3.43	.01	0.22	0.84	0.57
Reward	3.11	0.94	2.83	0.88	1.99	<i>ns</i>	-0.01	0.58	0.33
Community	3.32	0.85	3.01	0.97	2.17	.05	0.02	0.60	0.36
Fairness	2.71	0.76	2.57	0.79	1.12	<i>ns</i>	-0.12	0.40	0.19
Values	3.22	0.58	2.81	0.57	3.16	.01	0.15	0.68	0.53
Exhaustion	1.23	0.48	3.39	1.24	-9.86	.01	-2.60	-1.71	-1.64
Cynicism	2.68	1.03	3.81	1.19	-5.10	.01	-1.58	-0.68	-0.85
Efficacy	4.52	0.98	4.23	1.00	1.34	<i>ns</i>	-0.15	0.75	0.22

justified inequities, or cheating), their early warning pattern was likely to develop into burnout over time. In contrast, for those people who were not experiencing a fairness incongruity, the early warning pattern (of either exhaustion or cynicism) was likely to diminish over time and result in a pattern of engagement.

However, is the area of fairness always going to serve as the critical incongruity in the workplace, or might some of the other five areas serve that function as well? It could be that fairness plays a unique and central role in defining the workplace in fundamental terms as either a good place or a bad place to be. Once people begin to feel hostile and angry about job inequities, and lack faith in organizational processes to right any wrongs, this may set in motion an increasing cascade of negative reactions to the job. However, people who feel the workplace is fair and equitable, and who trust that good solutions will be found for problems, may be able to weather the storm that has led to the early warning sign. If correct, this analysis would suggest that fairness constitutes a primary tipping point—either the first, or only, or most important one.

An alternative argument is that the nature of the tipping point may depend on current conditions in the work environment. That is, the incongruity will reflect whatever area is most dominant—because of policies, or practices, or problems. For example, in an organization that is experiencing recurring problems of staff conflict and absenteeism, the area of community might be the source of a major incongruity. It could be argued that fairness was the dominant and salient issue for the organization that participated in

the study, as the initial results of the assessment at Time 1 led the senior management to identify the fairness area as especially problematic and to ask all of the departments to make changes that would improve fairness issues over time. The fact that there was a major fairness crisis in one of the departments underscores the salience of this particular area of worklife. It is important to keep in mind that this crisis occurred almost a year after the Time 1 assessment, so the incident itself cannot be viewed as causing the differential predictiveness of the incongruity scores for fairness.

Future longitudinal research will need to continue to assess all six areas of worklife in order to distinguish between the alternative hypotheses of primacy and saliency. Collection of other independent data about current conditions in the workplace would be especially helpful in this regard. Also, the use of an alternative method, such as a diary study, could provide useful evidence with regard to changes in people's job experience over time.

In addition to replicating these initial findings, future studies might explore improved measures of both of these early indicators. In the current study, a simple distinction between high and low scores on exhaustion and cynicism was made on the basis of a median split. Perhaps the early warning predictions might be improved by using a more sophisticated approach to scoring, such as a weighting of more extreme scores, or the use of the third dimension of burnout (inefficacy). Similarly, a better tipping point index might involve some combination of the six areas of worklife. Alternatively, there may be other variables, which are currently

Table 7
Contrast of Time 1 With Time 2 for Cynicism Only Group That Changed Toward Engagement

Variable	Time 1		Time 2		<i>t</i> (34)	<i>p</i>	95% confidence interval		Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			Lower	Upper	
Workload	3.40	0.72	3.40	0.74	-0.01	<i>ns</i>	-0.34	0.34	0.00
Control	3.50	0.66	3.65	0.65	-0.85	<i>ns</i>	-0.52	0.22	-0.18
Reward	3.32	0.74	3.58	0.67	-1.55	<i>ns</i>	-0.61	0.09	-0.33
Community	3.57	0.81	3.53	0.60	0.26	<i>ns</i>	-0.31	0.40	0.06
Fairness	3.52	0.84	3.33	0.65	1.21	<i>ns</i>	-0.14	0.52	0.26
Values	3.42	0.75	3.60	0.50	-1.36	<i>ns</i>	-0.46	0.10	-0.30
Exhaustion	1.05	0.54	1.09	0.42	-0.34	<i>ns</i>	-0.33	0.24	-0.07
Cynicism	2.35	0.73	1.29	0.34	5.66	.01	0.67	1.44	1.21
Efficacy	4.42	1.40	4.65	1.38	-0.80	<i>ns</i>	-0.82	0.37	-0.17

Table 8
 Contrast of Time 1 With Time 2 for Exhaustion Only Group That Changed Toward Burnout

Variable	Time 1		Time 2		<i>t</i> (34)	<i>p</i>	95% confidence interval		Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			Lower	Upper	
Workload	2.79	0.89	2.61	0.66	1.61	<i>ns</i>	-0.06	0.42	0.72
Control	3.60	0.83	3.13	1.18	1.91	<i>ns</i>	-0.05	0.98	0.85
Reward	3.58	0.82	3.26	0.62	1.68	<i>ns</i>	-0.08	0.70	0.75
Community	3.75	0.79	3.21	1.01	2.96	.01	0.16	0.92	1.32
Fairness	2.77	0.65	2.32	0.97	2.33	.05	0.05	0.85	1.04
Values	3.25	0.78	2.65	0.93	3.70	.01	0.26	0.94	1.65
Exhaustion	3.16	0.96	3.62	0.95	-2.08	.05	-0.92	0.00	-0.93
Cynicism	0.92	0.38	3.30	1.05	-8.71	.01	-2.95	-1.81	-3.89
Efficacy	4.54	1.08	4.38	1.25	0.51	<i>ns</i>	-0.49	0.80	0.23

untested, that would also serve as effective early warnings or tipping points. The challenge of conducting such future longitudinal research will continue to be considerable; the studies will need to involve sufficiently large samples of employees whose individual responses can be linked accurately over repeated assessments.

Implications for Intervention

The ability to predict future change has a clear practical benefit. Because it is now possible to identify in advance those people who are at greater risk for problems, organizations can be in a better position to develop targeted interventions. Some interventions might involve an individualized approach, such as personalized counseling or professional training. However, it is more likely that signs of impending problems will not be randomly distributed throughout the workforce but will tend to cluster within particular units or occupational groups—and such cluster patterns may call for broader, organizational solutions rather than individual ones.

In the current study, the crisis department turned out to be an example of such clustering. A look back at the Time 1 scores of employees in this unit shows that the combination of early warning signs and an incongruity for fairness (as well as two other areas) were signals that this particular department was in trouble and needed organizational attention. It is possible that earlier efforts to tackle these departmental problems might have lessened or forestalled the later crisis.

An intriguing finding that emerged from this study was the differential pattern associated with a change toward burnout as opposed to a change toward engagement. Increased burnout came with a much more negative evaluation of the workplace, but increased engagement showed no corresponding positive shift. In other words, when people's congruent evaluation of the workplace remained constant over the year, their early warning sign dissipated; however, when things got worse over time and people reported more areas of job-person incongruence, the early warning sign developed into burnout.

These contrasting patterns of change suggest that engagement is the more normative experience in the workplace as well as that occasional problems (which could lead to an early warning sign) are likely to be temporary and more easily resolved if the person maintains a good relationship with the job. Burnout, on the other hand, appears to be a major change from this normative baseline, in which the person's relationship to the job becomes increasingly problematic, and the mismatch of the initial incongruity spreads to more areas of worklife. If this speculation is correct, it suggests that different intervention strategies might be needed when a tipping point accompanies an early warning sign than when it does not. For example, the presence of a tipping point may signal the need for a more extensive organizational intervention to cope with the growing problem. However, an early warning sign, by itself, might call

Table 9
 Contrast of Time 1 With Time 2 for Exhaustion Only Group That Changed Toward Engagement

Variable	Time 1		Time 2		<i>t</i> (34)	<i>p</i>	95% confidence interval		Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			Lower	Upper	
Workload	3.17	0.72	3.37	0.49	-1.63	<i>ns</i>	-0.47	0.06	-0.39
Control	3.74	0.42	3.98	0.58	-2.25	.05	-0.47	-0.01	-0.53
Reward	3.31	0.87	3.65	0.61	-1.81	<i>ns</i>	-0.75	0.06	-0.43
Community	3.58	0.85	3.59	0.84	-0.05	<i>ns</i>	-0.45	0.43	-0.01
Fairness	3.38	0.60	3.39	0.63	-0.07	<i>ns</i>	-0.31	0.29	-0.02
Values	3.69	0.62	3.48	0.78	1.48	<i>ns</i>	-0.09	0.51	0.35
Exhaustion	2.76	0.66	1.51	0.35	6.42	.01	0.84	1.65	1.51
Cynicism	0.66	0.48	0.62	0.47	0.24	<i>ns</i>	-0.26	0.33	0.06
Efficacy	5.33	0.57	5.18	1.30	0.51	<i>ns</i>	-0.49	0.80	0.12

Table 10
Departmental Shifts for Time 1 Early Warning Groups

Department	To burnout	To engagement	Total
Other	27 (48%)	29 (52%)	56
Crisis dept.	29 (73%)	11 (27%)	40
Total	56 (58%)	40 (42%)	96

for a more preventive, individual approach to get things back on track for the person who is under temporary stress.

This approach leads to a set of decision rules when information on the relevant measures is available. First, if scores reveal the presence of either early warning pattern (exhaustion only or cynicism only), then action is appropriate because those people are more susceptible to change. Second, if scores reveal a tipping point pattern for fairness, then action is urgent because there is a risk of deterioration to a state of burnout. Third, if scores already reveal a pattern of burnout (both exhaustion and cynicism), then intervention requires a more extended and deliberate effort to be effective. With these decision rules, an assessment informs a management response to addressing the potential for burnout.

Conclusion

The current research represents an important first step in a strategic approach to dealing with burnout. The ability to identify developing problems early on, before they become more serious and pervasive, can enable timely, preventive solutions. It points to the possibility of being able to customize interventions to targeted employee populations.

The potential power of this approach rests on the fact that it functions like an organizational "checkup," with repeated assessments on a regular basis. The procedure for conducting such checkups has already been developed, along with the necessary measures of burnout and areas of worklife (Leiter & Maslach, 2000b). The added value of the current study is that we have identified new ways of scoring those measures to yield useful early indicators of potential problems.

However, because this study is only the first one to try out this new approach, the findings should be viewed with caution. A single organizational sample is insufficient for any strong claims about generalizability, and replications and extensions of these initial results are clearly needed. Nevertheless, the findings are exciting in their promise of applying research results to the solution of a real-world problem.

References

- Abelson, R. P., Aronson, E., McGuire, W. J., Newcomb, T. M., Rosenberg, M. J., & Tannenbaum, P. H. (Eds.). (1968). *Theories of cognitive consistency: A sourcebook*. Chicago, IL: Rand McNally.
- Bakker, A. B., Schaufeli, W. B., Demerouti, E., Janssen, P. M. P., Van der Hulst, R., & Brouwer, J. (2000). Using equity theory to examine the difference between burnout and depression. *Anxiety, Stress, & Coping, 13*, 247–268.
- Bakker, A. B., Schaufeli, W. B., Sixma, H. J., Bosveld, W., & VanDierendonck, D. (2000). Patient demands, lack of reciprocity, and burnout: A five-year longitudinal study among general practitioners. *Journal of Organizational Behavior, 21*, 425–441.
- Burke, R. J., & Greenglass, E. R. (1989). Psychological burnout among men and women in teaching: An examination of the Cherniss model. *Human Relations, 42*, 261–273.
- Burke, R. J., & Greenglass, E. R. (2001). Hospital restructuring, work-family conflict and psychological burnout among nursing staff. *Psychology and Health, 16*, 83–94.
- Buunk, B. P., & Schaufeli, W. B. (1993). Professional burnout: A perspective from social comparison theory. In W. B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 53–69). Washington, DC: Taylor & Francis.
- Chappell, N. L., & Novak, M. (1992). The role of support in alleviating stress among nursing assistants. *Gerontologist, 32*(3), 351–359.
- Cherniss, C. (1980). *Professional burnout in human service organizations*. New York: Praeger.
- Cordes, C. L., & Dougherty, T. W. (1993). A review and an integration of research on job burnout. *Academy of Management Review, 18*, 621–656.
- Deary, I. J., Blenkin, H., Agius, R. M., Endler, N., Zealley, H., & Wood, R. (1996). Models of job-related stress and personal achievement among consultant doctors. *British Journal of Psychology, 87*, 3–29.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology, 86*, 499–512.
- Drory, A., & Shamir, B. (1988). Effects of organizational and life variables on job satisfaction and burnout. *Group and Organization Studies, 13*(4), 441–455.
- Farber, B. A. (1984). Stress and burnout in suburban teachers. *Journal of Educational Research, 77*(6), 325–331.
- French, J. R. P., Jr., Rodgers, W., & Cobb, S. (1974). Adjustment as person-environment fit. In G. V. Coelho, D. A. Hamburg, & J. E. Adams (Eds.), *Coping and adjustment* (pp. 316–333). New York: Basic Books.
- Glass, D. C., & McKnight, J. D. (1996). Perceived control, depressive symptomatology, and professional burnout: A review of the evidence. *Psychology and Health, 11*, 23–48.
- Glicklen, M. D. (1983). A counseling approach to employee burnout. *Personnel Journal, 62*(3), 222–228.
- Golembiewski, R. T., Boudreau, R. A., Munzenrider, R. F., & Luo, H. (1996). *Global burnout: A world-wide pandemic explored by the phase model*. Greenwich, CT: JAI Press.
- González-Romá, V., Schaufeli, W. B., Bakker, A. B., & Lloret, S. (2002). Burnout and work engagement: Independent factors or opposite poles? *Journal of Vocational Behavior, 68*, 165–174.
- Greenglass, E. R., & Burke, R. J. (1990). Burnout over time. *Journal of Health and Human Resources Administration, 13*, 192–204.
- Greenglass, E. R., Fiksenbaum, L., & Burke, R. J. (1994). The relationship between social support and burnout over time in teachers. *Journal of Social Behavior and Personality, 9*, 219–230.
- Greenglass, E. R., Pantony, K.-L., & Burke, R. J. (1988). A gender-role perspective on role conflict, work stress and social support. *Journal of Social Behavior and Personality, 3*, 317–328.
- Hills, H., & Norvell, N. (1991). An examination of hardiness and neuroticism as potential moderators of stress outcomes. *Behavioral Medicine, 17*, 31–38.
- Jackson, S. E., & Maslach, C. (1982). After-effects of job-related stress: Families as victims. *Journal of Occupational Behaviour, 3*, 63–77.
- Jackson, S. E., Schwab, R. L., & Schuler, R. S. (1986). Toward an understanding of the burnout phenomenon. *Journal of Applied Psychology, 7*, 630–640.
- Kahn, R. L., & Byosiere, P. (1992). Stress in organizations. In M. D. Dunnette & L. M. Hough (Eds.), *Handbook of industrial and organizational psychology* (Vol. 3, pp. 571–650). Palo Alto, CA: Consulting Psychologists Press.
- Karasek, R., & Theorell, T. (1990). *Stress, productivity, and the reconstruction of working life*. New York: Basic Books.

- Kop, N., Euwema, M., & Schaufeli, W. (1999). Burnout, job stress, and violent behaviour among Dutch police officers. *Work & Stress, 13*, 326–340.
- Landsbergis, P. A. (1988). Occupational stress among health care workers: A test of the job demands–control model. *Journal of Organizational Behavior, 9*, 217–239.
- Laschinger, H. K. S., & Leiter, M. P. (2006). The impact of nursing work environments on patient safety outcomes: The mediating role of burnout/engagement. *Journal of Nursing Administration, 5*, 259–267.
- Lawler, E. E., III. (1968). Equity theory as a predictor of productivity and work quality. *Psychological Bulletin, 70*, 596–610.
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
- Lee, R. T., & Ashforth, B. E. (1993). A longitudinal study of burnout among supervisors and managers: Comparisons between the Leiter and Maslach (1988) and Golembiewski et al. (1986) models. *Organizational Behavior and Human Decision Processes, 54*, 369–398.
- Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology, 81*, 123–133.
- Leiter, M. P. (1992). Burnout as a crisis in professional role structures: Measurement and conceptual issues. *Anxiety, Stress, & Coping, 5*, 79–93.
- Leiter, M. P. (2005). Perception of risk: An organizational model of burnout, stress symptoms, and occupational risk. *Anxiety, Stress, & Coping, 18*, 131–144.
- Leiter, M. P., Day, A., Harvie, P., & Shaughnessy, K. (2007). Personal and organizational knowledge transfer: Implications for work life engagement. *Human Relations, 60*, 259–283.
- Leiter, M. P., & Durup, J. (1994). The discriminant validity of burnout and depression: A confirmatory factor analytic study. *Anxiety, Stress, & Coping, 7*, 357–373.
- Leiter, M. P., & Harvie, P. (1997). The correspondence of supervisor and subordinate perspectives on major organizational change. *Journal of Occupational Health Psychology, 2*, 1–10.
- Leiter, M. P., & Harvie, P. (1998). Conditions for staff acceptance of organizational change: Burnout as a mediating construct. *Anxiety, Stress, & Coping, 11*, 1–25.
- Leiter, M. P., Harvie, P., & Frizzell, C. (1998). The correspondence of patient satisfaction and nurse burnout. *Social Science & Medicine, 47*, 1611–1617.
- Leiter, M. P., & Laschinger, H. K. S. (2006, July). *Burnout and engagement with work during the initial years of nursing practice*. Presentation at the 26th International Congress of Applied Psychology, Athens, Greece.
- Leiter, M. P., & Maslach, C. (1988). The impact of interpersonal environment on burnout and organizational commitment. *Journal of Organizational Behavior, 9*, 297–308.
- Leiter, M. P., & Maslach, C. (1998). Burnout. In H. Friedman (Ed.), *Encyclopedia of mental health* (pp. 202–215). New York: Academic Press.
- Leiter, M. P., & Maslach, C. (2000a). Burnout and health. In A. Baum, T. Revenson, & J. Singer (Eds.), *Handbook of health psychology* (pp. 415–426). Hillsdale, NJ: Erlbaum.
- Leiter, M. P., & Maslach, C. (2000b). *Preventing burnout and building engagement: A complete program for organizational renewal*. San Francisco: Jossey Bass.
- Leiter, M. P., & Maslach, C. (2004). Areas of worklife: A structured approach to organizational predictors of job burnout. In P. Perrewé & D. C. Ganster (Eds.), *Research in occupational stress and well being* (Vol. 3, pp. 91–134). Oxford, United Kingdom: Elsevier.
- Leiter, M. P., & Maslach, C. (2005). A mediation model of job burnout. In A. S. G. Antoniou & C. L. Cooper (Eds.), *Research companion to organizational health psychology* (pp. 544–564). Cheltenham, United Kingdom: Edward Elgar.
- Maslach, C. (1993). Burnout: A multidimensional perspective. In W. B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 19–32). Washington, DC: Taylor & Francis.
- Maslach, C., & Goldberg, J. (1998). Prevention of burnout: New perspectives. *Applied and Preventive Psychology, 7*, 63–74.
- Maslach, C., & Jackson, S. E. (1981a). *The Maslach Burnout Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., & Jackson, S. E. (1981b). The measurement of experienced burnout. *Journal of Occupational Behavior, 2*, 99–113.
- Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach Burnout Inventory manual* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., & Leiter, M. P. (1997). *The truth about burnout*. San Francisco: Jossey Bass.
- Maslach, C., & Leiter, M. P. (2005). Stress and burnout: The critical research. In C. L. Cooper (Ed.), *Handbook of stress medicine and health* (2nd ed., pp. 153–170). London: CRC Press.
- Maslach, C., & Schaufeli, W. B. (1993). Historical and conceptual development of burnout. In W. B. Schaufeli, C. Maslach, & T. Marek (Eds.), *Professional burnout: Recent developments in theory and research* (pp. 1–16). Washington, DC: Taylor & Francis.
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. In S. T. Fiske, D. L. Schacter, & C. Zahn-Waxler (Eds.), *Annual Review of Psychology, 52*, 397–422.
- Maslanka, H. (1996). Burnout, social support and AIDS volunteers. *AIDS Care, 8*(2), 195–206.
- Pick, D., & Leiter, M. P. (1991). Nurses' perceptions of the nature and causes of burnout: A comparison of self-reports and standardized measures. *The Canadian Journal of Nursing Research, 23*(3), 33–48.
- Richardson, A. M., Burke, R. J., & Leiter, M. P. (1992). Occupational demands, psychological burnout, and anxiety among hospital personnel in Norway. *Anxiety, Stress, & Coping, 5*, 62–78.
- Royal, M. A., & Rossi, R. J. (1996). Individual level correlates of sense of community: Findings from workplace and school. *Journal of Community Psychology, 24*(4), 395–416.
- Sauter, S. L., & Murphy, L. R. (Eds.). (1995). *Organizational risk factors for job stress*. Washington, DC: American Psychological Association.
- Savicki, V. (2002). *Burnout across thirteen cultures: Stress and coping in child and youth care workers*. Westport, CT: Praeger.
- Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of Organizational Behavior, 25*, 293–315.
- Schaufeli, W. B., Bakker, A. B., Hoogduin, K., Schaap, C., & Kladler, A. (2001). The clinical validity of the Maslach Burnout Inventory and the Burnout Measure. *Psychology and Health, 16*, 565–582.
- Schaufeli, W. B., & Enzmann, D. (1998). *The burnout companion to study and practice: A critical analysis*. London: Taylor & Francis.
- Schaufeli, W. B., Leiter, M. P., Maslach, C., & Jackson, S. E. (1996). The Maslach Burnout Inventory—General Survey. In C. Maslach, S. E. Jackson, & M. P. Leiter (Eds.), *MBI manual* (3rd ed.). Palo Alto, CA: Consulting Psychologists Press.
- Schaufeli, W. B., van Dierendonck, D., & van Gorp, K. (1996). Burnout and reciprocity: Towards a dual-level social exchange model. *Work & Stress, 10*, 225–237.
- Schnorpfel, P., Noll, A., Wirtz, P., Schulze, R., Ehlert, U., Frey, K., & Fischer, J. E. (2002). Assessment of exhaustion and related risk factors in employees in the manufacturing industry: A cross-sectional study. *International Archives of Occupational and Environmental Health, 75*, 535–540.
- Schonfeld, I. S. (1989). Psychological distress in a sample of teachers. *Journal of Psychology, 124*, 321–338.

- Shinn, M., Rosario, M., Morch, H., & Chestnut, D. E. (1984). Coping with job stress and burnout in the human services. *Journal of Personality and Social Psychology, 46*, 864–876.
- Siefert, K., Jayaratne, S., & Chess, W. A. (1991). Job satisfaction, burnout, and turnover in health care social workers. *Health and Social Work, 16*(3), 193–202.
- Siegrist, J. (1996). Adverse health effects of high-effort/low-reward conditions. *Journal of Occupational Health Psychology, 1*, 27–41.
- Stevens, G. B., & O'Neill, P. (1983). Expectation and burnout in the developmental disabilities field. *American Journal of Community Psychology, 11*, 615–627.
- Truchot, D., & Deregard, M. (2001). Perceived inequity, communal orientation and burnout: The role of helping models. *Work & Stress, 15*, 347–356.
- Tyler, T. R. (1990). *Why people obey the law*. New Haven, CT: Yale University Press.
- Vahey, D. C., Aiken, L. H., Sloane, D. M., Clarke, S. P., & Vargas, D. (2004). Nurse burnout and patient satisfaction. *Medical Care, 42*, 57–66.
- Walster, E., Berscheid, E., & Walster, G. W. (1973). New directions in equity research. *Journal of Personality and Social Psychology, 25*, 151–176.
- White, S. L. (1987). Human resource development: The future through people. *Administration in Mental Health, 14*(3–4), 199–208.
- World Health Organization. (1992). *The ICD-10 classification of mental and behavioural disorders: Clinical description and diagnostic guidelines*. Geneva, Switzerland: Author.
- Zedeck, S., Maslach, C., Mosier, K., & Skitka, L. (1988). Affective response to work and quality of family life: Employee and spouse perspectives. *Journal of Social Behavior and Personality, 3*, 135–157.
- Zellars, K. L., Perrewe, P. L., & Hochwarter, W. A. (2000). Burnout in health care: The role of the five factors of personality. *Journal of Applied Social Psychology, 30*, 1570–1598.

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